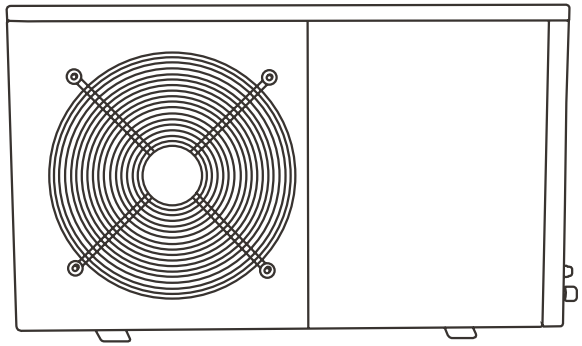
heat converter

Using Heat Pump Technology Designed Especially for Swimming Pools

SWIMMING POOL HEAT PUMP

User Manual



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1.Introduction

Thank you for using Heat Converter swimming pool heat pump for your pool heating, it will heat your pool water and keep the constant temperature when ambient temperature at +7℃ to 40℃.

In order to offer qualified, reliable and flexible heat pump unit to our customer, please read this manual carefully before installing, operating and troubleshooting, then process accordingly.

This manual includes all necessary information

⚠ ATTENTION

- The heat pump unit must be installed by qualified technicians from after-sales center or authorized distributor.
- Operating and maintaining according to recommended time and frequency on the manual.
- Use only standard spare parts.

1. Specifications

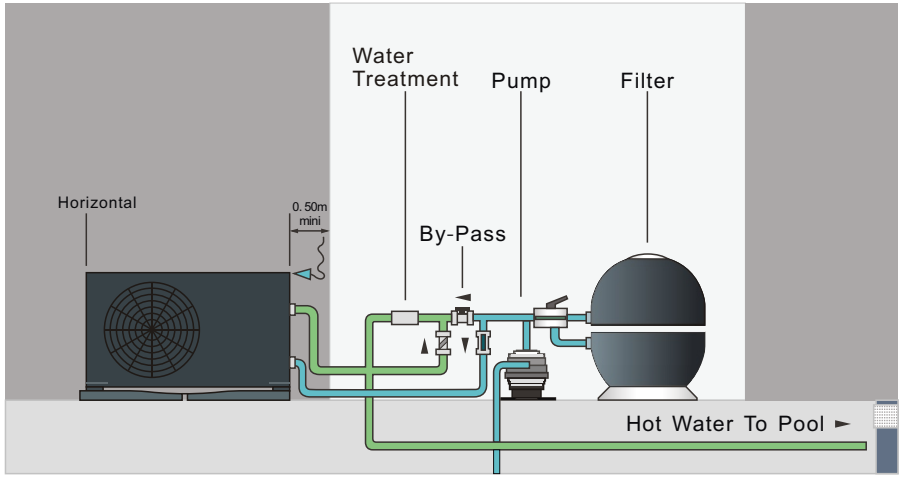
1.1 Pool Heat Pump (Horizontal , EU design)

Models		XP09Hs	XP12Hs	XP18Hs
* Capacity at +25℃				
Heat Output	KW	8. 7	12	18
Power Consumption	KW	1. 45	2. 0	3. 0
COP		6	6	6
* Capacity at +15℃				
Heat Output	KW	6. 45	9. 0	13. 5
Power Consumption	KW	1. 43	1. 95	3. 0
COP		4. 5	4. 5	4. 5
*Power Supply				
Voltage	V	220-240	220-240	220-240
Rated Current	A	6. 7	9. 3	13. 9
Advised Fuse	A	20	20	35
WATER DATA				
Advised pool volume	m^3	25-35	35-55	60-85
Advised water flux	L/min	100	140	170
Water pipe in-out spec	mm	50	50	50
*General Data				
Compressor		Rotary	Rotary	Rotary
Air flow				
*Condenser				
Noise level(10m)	dB(A)	36	37	42
Noise level(1 m)	dB(A)	47	48	54
Water Pressure	Kpa	15	15	16
Refrigerant	kg	1.2	1.3	2.3
*Dimension & Weight				
Net Dimension	mm	930/360/550	1000/360/620	1000/360/855
Net Weight	kg	50	65	95
Packing Dimension	mm	1060/380/600	1065/380/670	1065/380/955
Gross Weight	kg	56	72	105

Above data is subject to modification without notice.

3. Installation

3.1 Installation illustration



NOTE: The factory only provides the heat pump unit. The other items in the illustration are necessary spare parts for the water system which are provided by users or installers.

⚠ATTENTION:

Please follow these steps when operating the first time :
1.Open valve and charge water
2.Make sure that the pump and the water-in pipe have been filled with water
3.Close the valve and start the unit

3.2 Installation

(1) The heat pump unit must be installed by professional technicians. otherwise unit may be damaged or body injured, even dead

(2) The unit is designed for outdoor location with good ventilation. Recirculation of cold discharge air back into evaporator coil will greatly reduce heating capacity and efficiency of the unit, which will void the compressor warranty.

(3) The unit can be installed almost anywhere in the outdoors. To get a good performance ,it needs to meet the three factors :
a) Good ventilation
b) Stable and reliable power supply
c) Recycled water system
The difference from gas water heater, it should not bring environmental pollution or have the installing problems in-windy areas.

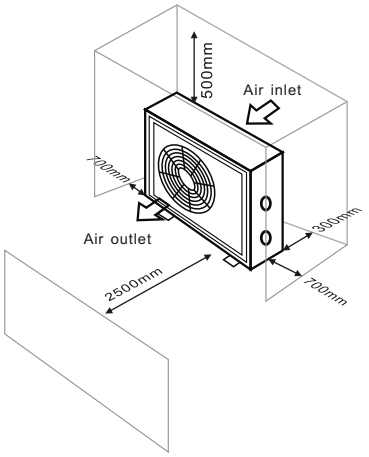
(4) The unit should not be installed in a limited air ventilation area ,or placed in a bush where it will block the air inlet . These location deny the unit of a continuous source of fresh air . When seasons changing , it may stick leaves on the evaporator coil , thereby reducing its efficiency and impact of its service life .

(5) For indoor installation, please consult more instruction from technicians.

(6) When install a bypass, it should be not exceed 30% of nominal flow rate .

(7) Must make Water level higher than the circulation pump location.

(8) Below picture show the minimum required distance on each side of pool heat pump unit.



(9) Typically, the pool heat pump unit should be installed aside the pools, less than 7.5 meters distance.

(10) To get the best heat exchange of heat pump unit, it should be matched the normal rate of water flow recommended in specification sheet.

(11) It is required to increase the discharge pipe to prevent freezing in cold season, to put T fitting and ball valve to facilitate changing the water in winter or emptying the water out of system to prevent freezing when HP stop operating at the ambient temperature below zero ,otherwise the unit may be damaged .

(12) It is suggested to install the quick adaptor in front of water in-out connection, which could discharge water easily to prevent water freezing, and be convenient for maintenance and service.

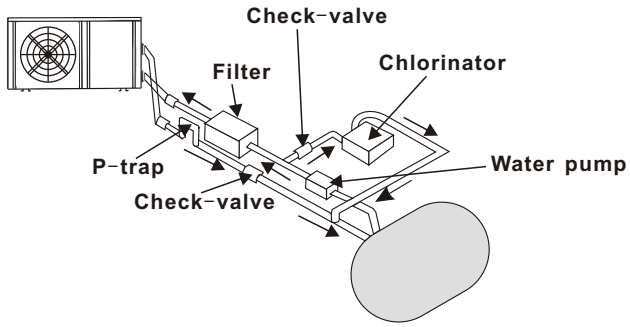
(13) When unit running ,there will be some condensation water discharged from the bottom, please hold the drainage nozzle (accessory) into the hole and clip well, and then connect a pipe to drain the condensation water out.

(14) If water pressure is over 10 KPA, or water flow rate is more than 11 cubic meters through heat exchanger, it is necessary to install the by-pass pipe in water system.

3.3 The location of chemical's instruction to your system is also critical to the heater's life.

If an automatic chlorinator or brominates is used, it must be located downstream of the heater.
A trap must be installed between the chlorinator and the heater to prevent chlorine return into the heat pump. (See below pictures)

Pressure-type Chlorinator or Brominator



In-line Chlorinator or Brominator

Disconnect: A disconnect means (circuit breaker, fused or un-fused switch) should be located within sight of and readily accessible from the unit. This is common practice on commercial and residential heat pumps. It prevents remotely-energizing unattended equipment and permits turning off power at the unit while the unit is being serviced.

4. Initial Startup of the unit

Note: Please make sure the water pump is running in circulation with adequate rate of water flow.

Startup Procedure after Installation is completed, and please follow these steps:

(1) Turn on your filter pump ,check water leaks and verify flow of swimming pool

(2) Turn on the electrical power supply to the unit, then press the key ON/OFF of wire controller, it should start in several seconds.

(3) After running a few minutes make sure the air ventilation from the side (top) of the unit is cooler (Between 5℃ and 10 ℃)

(4) When turn off the filter pump, the unit should also turn off automatically, if not, then adjust the flow switch

(5) Allow the unit and pool pump to run 24 hours per day until the water reaches the desired temperature. When thetemperature reaches the setting value, the HP unit will shut down, when the pool temperature drops more than 1℃, please restart (as long as HP unit is running)

Water Flow Switch:

It is equipped with a flow switch for protecting the HP unit running with adequate water flow rate .It will turn on when the pool pump runs and shut it off when the pump shuts off. If the pool water level higher than 1 m above or below the heat pump's automatic adjustment knob, your dealer may need to adjust its initial startup.

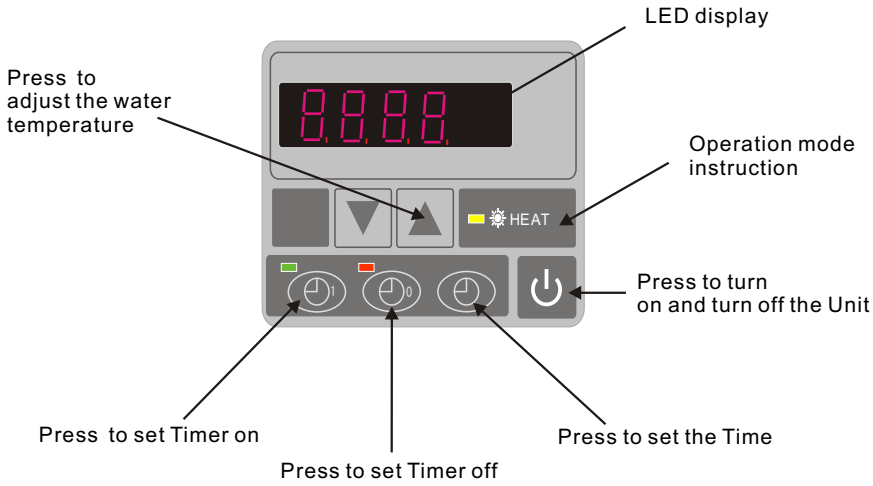
Time Delay:

HP unit should be equipped with a 3-minute built-in solid-state re-start delay protection. Time delay control is an integral part of the circuit control, it can eliminate restart cycling and contactor chatter.

The time delay will automatically restart the HP unit approximately 3 minutes after each control circuit interruption. Even a brief power interruption will activate the solid state 3 minute restart delay and prevent the unit from the starting until the 3 minutes countdown is completed.

5. Operation Heating Only

5.1 The functions of LED wire controller


LED display
Press to adjust the water temperature
Operation mode instruction
HEAT
Press to turn on and turn off the Unit
Press to set Timer on
Press to set Timer off
Press to set the Time

5. 2 How to set operation parameter (LED display show real time till HP unit is power off.)

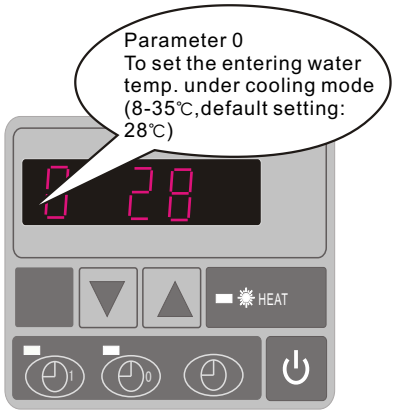
(1) Long press " " 5 seconds to enter operating parameter setting interface.

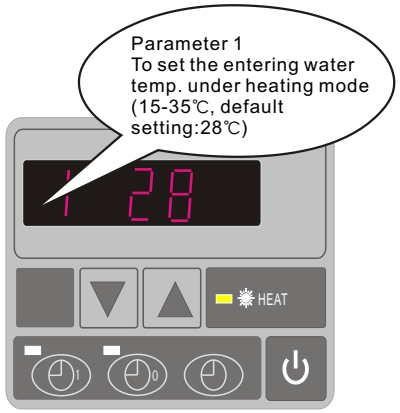
(2) Under parameter setting, Press ▼ and ▲ hold for 5 seconds to enter operating parameter setting interface

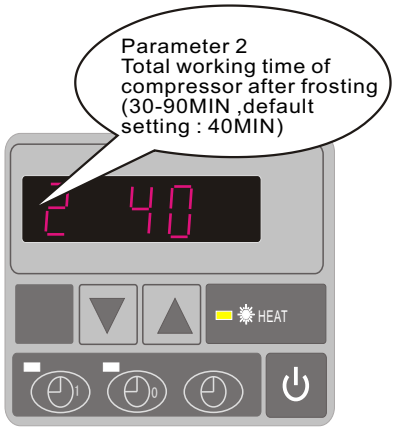
(3) Under parameter setting, Press " " "again to start setting parameters from 0 to A#, (see operation parameter table).

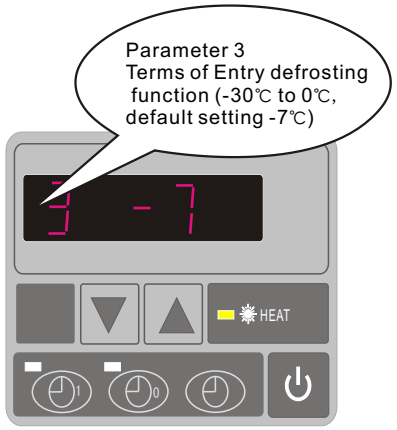
(4) Leave it 8 seconds, LED will display water in temperature (under running) or time (until stops).

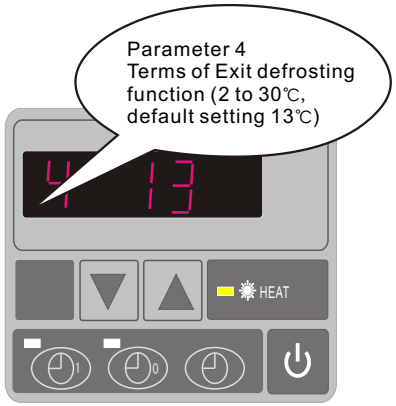
(5) Under current mode, press ▼ or ▲ to modify the water setting temperature whenever it is ON/OFF status.

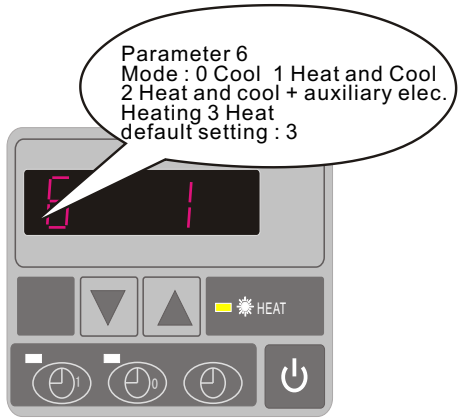


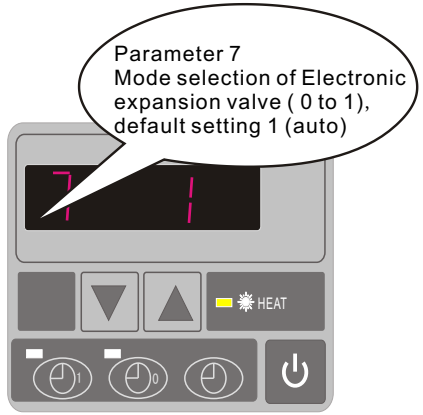




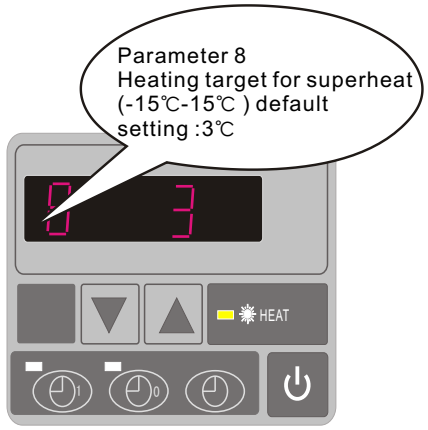


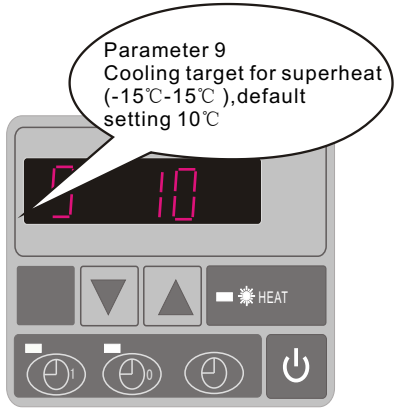


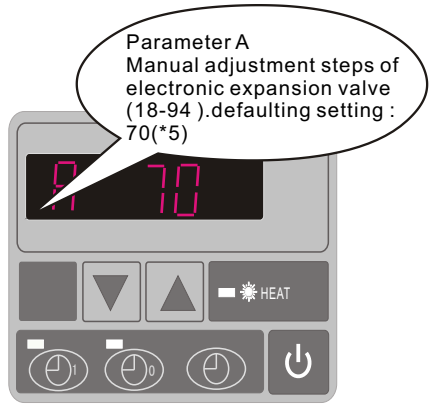




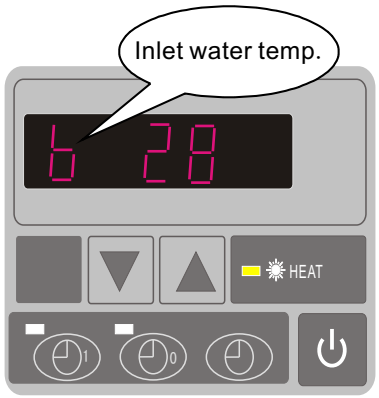
Note: Parameter 7 is only applied for HP units with Electronic expansion valve .

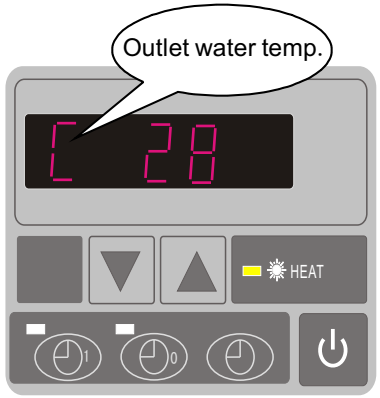


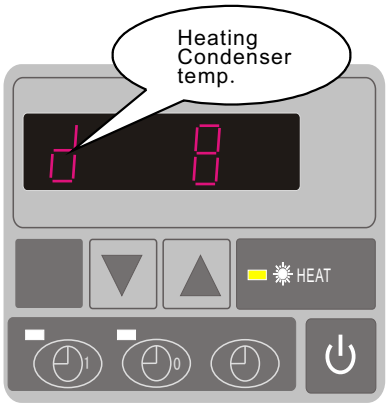


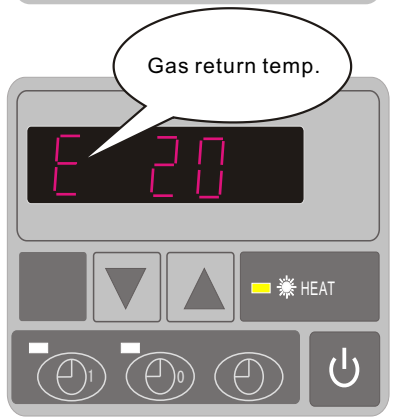


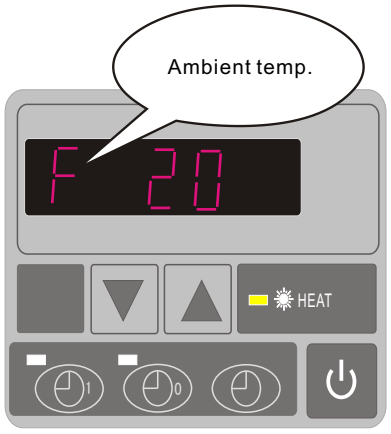
5.3 How to know the current status?

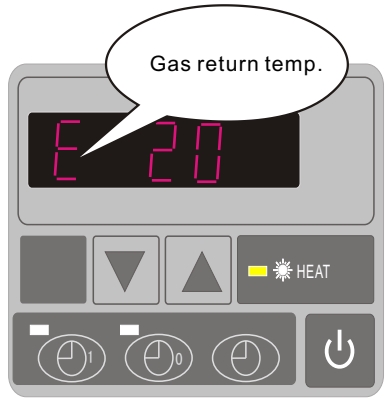


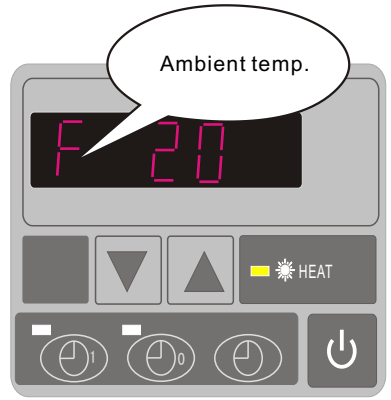


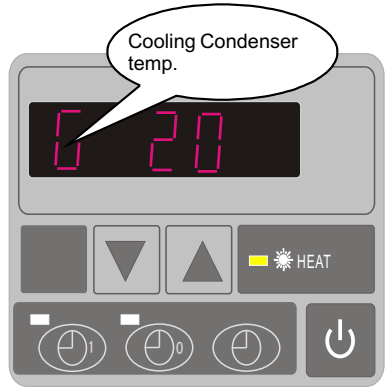


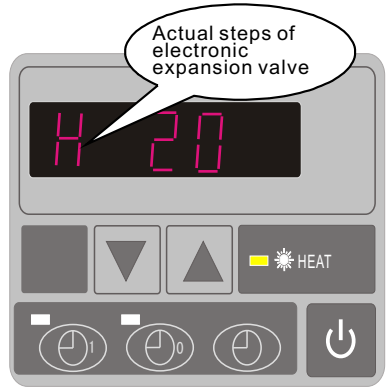












(1) Long press " " 5 seconds to enter operating parameter setting interface.

(2) Press and hold for 5 seconds to enter operating parameter setting interface.
You can check water -in/water-out /Condenser/ambient temperature.

(3) Mode can be changed while running.

(4) When the unit is switched off, current time is displayed.

Time setting:
Press to set the time, and press or to adjust the time
After pressed the again to store the new data.
When setting the time, and can not work.

TIMER ON SETTING
Press to set the time for HP start to run ,and press or to adjust starting time. then, to press again to store the new data.
When lights, Press to cancel the timer setting.

TIME OFF SETTING
Press to set the time for HP stop running, press or to adjust the time of stop running. then, press againto store the new data.
When lights, press to cancel the timer setting.

5.4 RUNNING DATA SETTING

⚠ ATTENTION:

HP running parameters must be checked after installation and before first used.

When HP is running, LED displays water inlet temperature

When HP is stopping, LED wire controller displays the actual time.

When HP running, the running mode (cooling or heating) and water temp could be changed. Other parameters only changeable when HP stopping.

Parameter	Meaning	Range	Default	Remarks
0	To set the entering water temp. under cooling mode	8-35℃	28℃	Adjustable
1	To set the entering water temp. under heating mode	15-35℃	28℃	Adjustable
2	Entry into defrosting time period	30-90MIN	40MIN	Adjustable
3	Terms of Entry defrosting function	-30℃to 0℃	-7℃	Adjustable
4	Terms of Exit defrosting function	2 to 30℃	13℃	Adjustable
5	Time of Exit defrosting	1 to 12MIN	8MIN	Adjustable
6	Mode : 0 Cool 1 Heat and Cool 2 Heat and cool + auxiliary elec. heating 3 Heat	0-3	3	Adjustable
7	Mode selection of Electronic expansion valve	0-1	1 (auto)	Adjustable
8	Superheat for heating target	-15℃-15℃	3℃	Adjustable
9	Superheat for cooling target	-15℃-15℃	10℃	Adjustable
A	Manual adjustment steps of electronic expansion valve	18-94	70	Adjustable
b	Inlet water temperature	-9-99℃		Exact testing by value
C	Outlet water temperature	-9-99℃		Exact testing by value
d	Condenser temperature under heating mode	-9-99℃		Exact testing by value
E	Gas return temperature	-9-99℃		Exact testing by value
F	Ambient temperature	-9-99℃		Exact testing by value
G	Condenser temperature under Cooling mode	-9-99℃		Exact testing by value
H	Actual steps of electronic expansion valve	N*5		Exact testing by value

Remarks :

(1) When HP stop running in 30 seconds ,water pump will shut off automatically .

(2) LED wire controller can operate the water pump after connected additional cable to the pump device in the position of “PUMP” terminal accurately .

(3) It is necessary to put an extra 3-phase transfer device for 3 phase water pump

6. Maintenance

(1) You should check the water supply system regularly to avoid the air entering the system and occurrence of low water flow, because it would reduce the performance and reliability of HP unit.

(2) Clean your pools and filtration system regularly to avoid the damage of the unit as a result of the dirty of clogged filter.

(3) Keep the HP unit dry, clean, well-ventilated and always clean side of the heat exchanger which can maintain a good heat exchange and energy saving.

(4) Only a qualified service technician is allowed to operate pressure of the refrigeration system.

(5) Check power cable connection, if heat pump start to operate abnormally, you should turn it off and contact with qualified technicians.

(6) You should discharge the water from water pump and other water system, to prevent from the freezing damage in winter seasons.

(7) You should discharge the water from bottom of water pump if HP unit will stop running for a long time. In another way, you should check the units thoroughly and fill the system with water fully before the unit start to run again.